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EXPOSURE TO COMMUNITY VIOLENCE AND YOUNG ADULT CRIME: THE EFFECTS OF WITNESSING VIOLENCE, TRAUMATIC VICTIMIZATION, AND OTHER STRESSFUL LIFE EVENTS

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Evidence has accumulated that young people in America are witnesses to considerable violence at home and in the community. This study is the first to examine the association between witnessing community violence and criminal behavior in a representative sample of young adults. In addition, the authors consider whether receiving traumatic news, witnessing domestic violence, experiencing accidents, and being the direct victim of domestic and community-based violence are independently associated with young adult crime. The results indicate that recent exposure to violence in the community along with a history of receiving traumatic news, direct victimizations in the community, recent life events, and associations with criminal peers increase the risk for young adult criminal offending. The implications of these results are discussed.

The deleterious effects of witnessing violence have gradually captured the attention of criminologists and criminal justice professionals. Although the violent victimization of children has been examined extensively with respect to developmental consequences (Widom 1989), attention has only recently been devoted to the question of whether exposure to community and family violence increases the risk for childhood and adolescent problems (Edleson 1999). Among the consequences of exposure to community violence that have been identified are elevated psychological distress, low self-esteem, a heightened risk for displaying trauma-related symptoms (Boney-McCoy and Finkelhor 1995; Hughes 1988; Maker, Kemmelmeier, and Peterson 1998;

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Martinez and Richters 1993), lower social competence (Adamson and Thompson 1998), and poor school performance. Exposure to violence during childhood has also been found to be a significant predictor of subsequent antisocial behavior (Miller et al. 1999; Scarpa 2001; Schwab-Stone et al. 1995, 1999). Given that an estimated 10 million teenagers witness domestic violence alone each year (Straus 1992), more information is clearly needed on the nature and extent of the link between witnessing violence and behavioral problems.

Despite some recent interest (Groves 1996; Horn and Trickett 1998), research examining the association between witnessing violence and antisocial behavior remains distinctly limited. Accordingly, the available evidence must be regarded as preliminary, and a number of issues remain to be addressed. First, most research has focused on domestic violence and the effects on children of witnessing such violence. Among the several limitations to these studies are (a) a failure to adequately differentiate the effects of witnessing domestic violence from the effects of being abused; (b) the use of unrepresentative samples, with clinical or other convenience samples typically being employed; and (c) the use of mothers' reports of their children's problems as the principal measure of antisocial behavior (Edleson 1999). This research has suggested that the combination of witnessing domestic violence and being abused is a strong predictor of subsequent adolescent violent behavior (Spaccarelli, Coatsworth, and Bowden 1995). However, the extent to which such findings generalize to adult criminal behavior is unknown, and the impact of witnessing violence net of the effects of personal victimization is uncertain (Edleson 1999).

Second, the few studies that have examined the prevalence and consequences for deviance of witnessing community violence have also had limitations. All but one considered the effects of community violence among high-risk youth: male, inner-city, non-White, and low-socioeconomic-stratum populations (Scarpa 2001). Only Scarpa (2001) evaluated the significance of witnessed violence within a relatively low-risk population. She found that college students who had been exposed to higher levels of violence reported significantly higher levels of aggression, and she noted that only her study and that of Paschall, Flewelling, and Ennett (1998) examined the effects of witnessing community violence on adult antisocial behavior. Because young adults fall within a high-risk group for exhibiting criminal behavior, they represent an important population within which to examine the effects of witnessed violence.

Although the two studies that targeted young adult populations represent important contributions to this emerging literature, neither employed a representative sample that would allow the evaluation of the effects of community violence within and across ethnically diverse subpopulations. Indeed, we are

aware of no previous study that examined the effects of witnessed violence among a representative sample of young adults of differing ethnic backgrounds. In addition, neither study disaggregated the effects of being victimized from those of witnessing victimization.[1] As Edleson (1999) noted, "many studies appear to attribute child problems to the 'effects of witnessing violence,' when, in fact, they may be more strongly associated with having been a direct victim of abuse" (pp. 844-845). To reduce concerns about spuriousness, research into the effects of exposure to community violence should control for the effects of violent victimization.

Third, most studies on witnessing domestic violence have considered the effects of only recent experiences on child problems (Edleson 1999), and neither of the two young adult studies of witnessed community violence distinguished the effects of proximal and more distal experiences. In the light of research suggesting that childhood victimization predicts adult criminal behavior (Widom 1989) and that witnessing domestic violence may have psychological effects that extend into adulthood (Silvern et al. 1995), it seems important to assess whether earlier experiences with violence are associated with criminal behavior or if only more proximal exposures are consequential.

Fourth, extant studies of the effects of witnessed violence have failed to evaluate such experiences in the context of overall exposure to social stress. Thus, there is a question of whether it is viewing violence or growing up under generally stressful life conditions that matters for problem behavior (Myers and Thompson 2000). Research on the stress process has demonstrated that exposure to stressful life events is associated with subsequent life problems, including mental health problems (Aneshensel and Phelan 1999; Turner, Wheaton, and Lloyd 1995). Likewise, Agnew's (1985, 1989, 1992) general strain theory hypothesizes that exposure to such stressors heighten the risk for criminal behavior among adolescents, and recent studies have provided some support by demonstrating relationships between exposure to stressors and criminal behavior (Agnew and White 1992; Brezina 1996; Hoffman and Cerbone 1999; Mazerolle 1998; Paternoster and Mazerolle 1994).

It is noteworthy that Agnew (1999) recently incorporated the notion of witnessing violence into the framework of his general strain theory, arguing that in addition to direct experiences of strains, exposure to such "vicarious strain" may also be connected to criminal behavior. In his explication of stress process theory, Pearlin (1989) urged a clear focus on the structural contexts of people's lives, arguing that stressful events and circumstances are rooted in and arise out of these contexts. Because the witnessing of violence may tend to occur in contexts characterized by exposure to diverse other stressors, it is important to evaluate the effects of witnessed violence taking

full account of other dimensions of social stress. In this regard, Turner and Lloyd (1999) found both witnessed violence and getting traumatic news (i.e., hearing about the victimization of a relative, friend, or acquaintance) to be independent predictors of mental health problems among young adults. Thus, violence to significant others may not have to be witnessed to be relevant to well-being and, perhaps, to subsequent problem behaviors.

The present study is among the first to concurrently examine the relationships between antisocial behavior and both witnessed community violence and hearing about the violent victimization of significant others and to consider such associations in the context of other forms of stress exposure. We attempt to achieve this while addressing each of the limitations described above. Using a random sample of young adults from Miami, Florida, we examine the association between criminal behavior and witnessing both community and domestic violence, controlling on variations in stressful life events and in receiving news about the victimization of significant others. In addition, we consider whether distal as well as more proximal experiences of witnessed violence are significantly associated with adult criminal behavior. Finally, this array of questions is addressed taking the possible roles of prior adolescent deviance and peer criminality into account.

Our general hypothesis is that witnessing community violence is positively associated with young adult criminal behavior, independent of exposure to other stressors and of prior deviance and peer criminality. We also assess the relative significance of distal and proximal experiences of witnessing violence.

DATA AND MEASURES

Sample

The data for these analyses were obtained in interviews conducted between 1998 and 2000 as part of an ongoing South Florida study of risk and protective factors associated with young adult substance use and mental health problems. The initial sampling pool for this study was composed of a representative sample of 5,370 boys and 554 girls previously studied during early adolescence (three yearly questionnaires administered when participants were in grades 6 and 7, grades 7 and 8, and grades 8 and 9). A stratified random sample was drawn that roughly conformed to the ethnic and racial composition of the Dade County school system such that Hispanics constituted approximately 50 percent of the sample, whereas African Americans and non-Hispanic Whites each constituted about 25 percent. Overall, 76.4 percent of those who were chosen and recruited for the present study were

successfully interviewed, including 911 boys and 319 girls. The female sample was supplemented through a random selection from the original 9th-grade Dade County class rolls. However, because early adolescent data were not available for this supplementary sample, only the 319 girls who were previously studied were included in the present analyses.

The data used in this article were collected in two waves. The data collected from the 1998 to 2000 interviews were gathered when the respondents were between the ages of 18 and 23 years, with 94.4 percent of the sample being 19 to 21 years old. These data are supplemented with data collected when the respondents were in either the eighth or ninth grade (wave 3 of the adolescent study, conducted in 1993). Those young adults interviewed from 1998 to 2000 were compared with the total sample drawn from the original adolescent study population on a wide array of early adolescent behaviors and family characteristics of possible relevance to mental health or substance abuse risk. These included family structure, parent education, household income, depressive symptoms, alcohol use, drug use, family alcohol problems, and family drug use problems. No statistically significant differences were observed. We also made comparisons with respect to school dropouts. Among those interviewed, 20.5 percent reported that they had dropped out of high school. This corresponds closely with rates reported by the school board for the same student cohort of 21.1 percent for boys and 15.2 percent for girls (Miami-Dade County Public Schools 1999). These close similarities and the 76.4 percent follow-up success rate allow the conclusion that our sample was representative of the population from which it was drawn.

MEASURES

All of the data garnered from the following measures were collected during the 1998 to 2000 interviews with the exception of the measure of adolescent deviance, which was collected during 1993.

Stressors

A major objective of the general study from which this analysis stems was to provide a substantially more comprehensive estimate of individual and group differences in exposure to social stress than has typified previous research. Because of the comprehensiveness of available stress measures, these data provide an opportunity to examine the association between witnessing violence and criminal behavior while controlling for abuse victimizations, nondomestic violent victimizations, accidents, and hearing about traumatic events occurring to significant others.

Witnessing Violence

We considered two dimensions of witnessed violence: witnessing community violence and witnessing domestic violence. Witnessing community violence was assessed by four items dealing with experiences of seeing people attacked by others. Two different counts of such experiences were employed to assess the significance for criminal behavior of the timing of witnessed community violence: (a) violent events in the community witnessed in the past year (proximal community violence) and (b) violent events in the community witnessed prior to the past year (distal community violence). Scores for each of these dimensions ranged from zero to four, which represented exposure to each of the four types of experiences.[2]

Witnessing domestic violence was assessed by one item[3] asking whether the respondent witnessed his or her mother or another close female relative being regularly physically or emotionally abused. Two different measures of witnessing domestic violence were also employed to assess the significance of timing for the prediction of the dependent variable: (a) whether domestic violence was witnessed in the past year (proximal domestic violence) and (b) whether domestic violence was witnessed previously (distal domestic violence). Scores for each measure ranged from zero to one.[4]

Traumatic news was assessed by five items asking the respondent about being informed of violent events that he or she did not witness, such as hearing about a friend being raped. Measuring exposure to traumatic news allowed us to consider whether the actual witnessing of trauma is more potentially criminogenic than merely learning about a traumatic event occurring to a loved one; if it is merely the stress of discovering that a traumatic event occurred that matters, then we would expect that measures of witnessing violence and receiving traumatic news would be approximately equal predictors of the dependent variable. We again used two different measures: receiving traumatic news over the past year (proximal traumatic news) and previously (distal traumatic news). Scores for each measure ranged from zero to five.

Lifetime Traumas

In addition to witnessing violence and receiving traumatic news, we examined the association between experiencing other traumatic events and criminal behavior. There is compelling evidence that traumatic events can have behavioral and mental health consequences despite occurring years or even decades earlier (Bryer et al. 1987; Faravelli et al. 1986; Lauer and Lauer 1991; Rutter 1989; Turner and Lloyd 1999). We examined three domains of such traumas: accidents, abuse victimizations, and other violent victimizations. Accidents were measured by three items asking whether the respon-

dent had lost his or her home because of a natural disaster; suffered a serious accident, injury, or illness; or witnessed an accident or disaster in which someone was hurt badly or killed.[5] Domestic victimization was measured by six questions asking whether the respondent had suffered sexual, physical, or emotional abuse by intimates. Other violent victimization was measured by four items dealing with being victimized in the community; these were nondomestic victimization experiences. Included in this category were being physically assaulted or mugged, being chased but not caught, being shot at with a gun or threatened with a weapon (but not injured), and being shot with a gun or badly injured with another weapon. Segregating domestic-based victimizations from accidents and other violent victimizations allowed us to assess whether experiencing each of these types of traumas is linked with criminal behavior. Each of the three domains of traumas examined (accidents, abuse victimizations, and other violent victimizations) was inventoried in two measures: proximal and distal traumas. Scores for both of the accident measures ranged from zero to three, scores for both of the abuse victimization measures ranged from zero to six, and scores for each of the other violent victimization measures ranged from zero to three.

Summary Count of Proximal Adversities

For the purpose of providing a context for evaluating the role of exposure to distal events, we also included a summary measure of all of the proximal adversities (witnessing community violence, witnessing domestic violence, receiving traumatic news, domestic abuse victimization, other violent victimization, and accidents).

Other Measures of Stress

Recent life events were conceptualized as stressful but not violent events that occur with some frequency, such as a divorce or the failure of a grade in school (Sarason, Johnson, and Siegel 1978; Turner and Lloyd 1999; Turner et al. 1995). Because previous research has used measures of negative life events to evaluate the relationship between stress and delinquency (e.g., Agnew and White 1992; Hoffman and Cerbone 1999; Paternoster and Mazerolle 1994), we included consideration of these kinds of stressors to provide context to our evaluation of the potential impact of witnessing violence on criminal behavior. Recent life events were assessed using a 29-item inventory that considered events occurring to significant others as well as to respondents (items in the Appendix).

Association with Deviant Peers

Our measure of association with deviant peers entailed a six-item scale that measured the respondent's perception of his or her friends' involvement in deviance. The scale asked the respondent to provide information on how many of his or her friends regularly engaged in deviant activities, including carrying a handgun and physically beating or seriously hurting other people. Higher scores reflect greater perceived exposure to peer deviance (Cronbach's alpha = .82). Because this variable was measured concurrently with the dependent variable, concerns about the directionality of any association between peer deviance and criminal behavior must be considered carefully. Further, because recent research suggests that there is considerable overlap between measures of self-reported association with deviant peers and self-reported criminal behavior (Matsueda and Anderson 1998), caution must be taken in interpreting models that include such a measure. Hence, we report models of interest with and without the measure of peer deviance.

Adolescent Deviance

This seven-item scale, measured in 1993 when respondents were in either the eighth or ninth grade, was a self-report inventory measuring the extent of deviance involvement by the respondent as an adolescent. The respondent was asked whether he or she had committed the following behaviors in the previous month: (a) taking between $2 and $50 when he or she was not supposed to; (b) taking part in gang fights; (c) using force to get money or expensive things from another person; (d) breaking into and entering a home, store, or building; (e) taking a car for a ride without the owner's permission; (f) taking something worth more than $50 when he or she was not supposed to; and (g) beating up someone for no reason. Dividing the sum of the scale by seven produced a mean score. Higher scores indicate greater involvement in deviant behavior (Cronbach's alpha = .77).

Demographic Characteristics

In addition to race and ethnicity, gender, social class,[6] and marital status were used as control variables because they have been shown to predict cumulative stress exposure levels (Turner and Lloyd 1999; Turner et al. 1995), and each of these characteristics has been argued to be associated with differences in deviant activity (Hindelang 1978; Tittle and Meier 1990; Weis 1976).

Criminal Behavior

Eight items that asked the respondent to self-report behaviors committed in the past month were employed to index criminal behavior. The respondent was asked about (percentage reporting such involvement in parentheses) (a) using force to get money or expensive things from another person (1.1 percent), (b) breaking and entering (1.4 percent), (c) damaging or destroying property that did not belong to him or her (4.1 percent), (d) taking a car for a ride without the owner's permission (1.9 percent), (e) taking something worth more than $50 when he or she was not supposed to (3.1 percent), (f) carrying a handgun when he or she went out (6.8 percent), (g) taking more than $20 from family or friends without permission (2.4 percent), and (h) taking part in gang fights (1.5 percent). Because most respondents reported involvement in either one or none of the behaviors in the past month, we collapsed responses into these two categories (versus eight). Because most of the items that constituted this measure asked about relatively serious criminal activities, we interpreted a score of one as indicating significant involvement in crime.

There are two advantages to employing items that inquire about criminal behavior over the past month instead of the conventional self-report measures that ask for information about activities committed over the past year (Agnew and Brezina 1997). First, a shorter recall period should increase the accuracy of recall. Second, asking about behaviors over the past month instead of the past year minimizes the temporal order problem that arises when predictor variables and the dependent variable are measured concurrently. Because criminal behavior was measured over the preceding month, whereas exposure to stressors was measured over one's entire lifetime or over the past year, concern about the temporal ordering of the independent and dependent variables was minimized. However, although this fact and the availability of longitudinal data on prior deviance clearly aid interpretation, the possibility of reciprocal or reverse causality cannot be ruled out.

RESULTS

Table 1 displays the prevalence rates of 23 individual adversities by race and ethnicity and by gender along with odds ratios for the association of each adversity with criminal behavior. These odds ratios were computed controlling for race and ethnicity, gender, socioeconomic level, and marital status. Experiencing of any of 18 (out of 23) adversities was associated with a significantly increased risk for being involved in criminal behavior ($p < .05$). The five adversities not found to be significant were losing one's home because of

TABLE 1: Partial Associations with Criminal Behavior and Lifetime Prevalence of Individual Adversities by Ethnicity and Gender (*N* = 1,230)

Item	*Adjusted Odds Ratio*	*White Non-Hispanic*	*Cuban*	*Other Hispanic*	*African American*	*Male*	*Female*
Lifetime traumas							
Accidents							
Did you ever lose your home because of a natural disaster?	1.06	27.0%	9.7%	10.9%	22.2%	16.6%	10.7%
Have you ever had a serious accident, injury, or illness that was life threatening or caused long-term disability?	1.84*	12.0%	15.6%	11.7%	12.9%	13.5%	11.9%
Did you ever witness a serious accident or disaster where someone else was hurt very badly or killed?	2.28*	48.5%	49.7%	49.2%	56.5%	56.1%	37.3%
Abuse victimizations							
Did you ever have sexual intercourse when you didn't want to because someone forced you or threatened to harm you if you didn't?	1.83	4.4%	4.9%	2.0%	6.9%	2.6%	10.7%
Were you ever touched or made to touch someone else in a sexual way because they forced you in some way, or threatened to harm you if you didn't?	1.43	9.0%	5.9%	8.9%	7.2%	4.3%	17.9%
Were you regularly physically abused by one of your parents, step parents, grandparents, or guardians?	1.89	2.7%	1.7%	2.4%	3.6%	1.6%	5.3%
Were you regularly emotionally abused by one of your parents, step parents, grandparents, or guardians?	1.32	7.9%	6.6%	6.5%	6.9%	5.3%	11.9%
Were you ever physically abused or injured by a spouse/boyfriend/girlfriend?	2.57*	6.3%	6.3%	5.2%	8.7%	5.0%	11.3%
Were you ever physically abused or injured by someone else you knew?	1.99*	9.3%	6.6%	5.6%	7.2%	7.4%	7.2%

(continued)

TABLE 1 Continued

Item	*Adjusted Odds Ratio*	*White Non-Hispanic*	*Cuban*	*Other Hispanic*	*African American*	*Male*	*Female*
Other violent victimizations							
Have you ever been shot at with a gun or threatened with another weapon but not injured?	3.96*	40.9%	37.8%	42.7%	46.8%	51.2%	16.6%
Have you ever been shot with a gun or badly injured with another weapon?	4.71*	3.8%	7.6%	8.1%	12.0%	9.5%	2.5%
Have you ever been chased but not caught when you thought you could really get hurt?	3.45*	30.0%	28.8%	30.2%	28.5%	36.0%	10.7%
Have you ever been physically assaulted or mugged?	1.91*	21.8%	22.2%	25.0%	22.5%	26.5%	12.2%
Witnessing violence							
Domestic violence							
Did you witness your mother or another close female relative being regularly physically or emotionally abused?	1.92*	13.4%	13.5%	22.2%	27.9%	17.2%	24.5%
Community violence							
Have you seen someone chased but not caught or threatened with serious harm?	3.46*	39.8%	36.5%	39.9%	60.7%	51.2%	26.3%
Have you seen someone else get shot at or attacked with another weapon?	3.73*	33.5%	34.0%	37.1%	58.9%	46.3%	26.6%
Have you ever seen someone seriously injured by gunshot or some other weapon?	3.24*	24.8%	27.8%	29.4%	54.7%	37.7%	25.7%
Have you ever actually seen someone get killed by being shot, stabbed, or beaten?	3.79*	9.8%	10.1%	14.1%	25.2%	16.1%	11.3%
Receiving traumatic news							
Have you ever been told that someone you knew had been shot, but not killed?	2.98*	25.9%	29.2%	38.3%	66.4%	40.1%	39.8%

Have you ever been told that someone you knew had been killed with a gun or other weapon?	2.06*	25.6%	31.3%	34.7%	66.7%	40.2%	38.2%
Has anyone else you knew died suddenly or been seriously hurt?	1.40*	36.5%	36.1%	36.3%	41.4%	37.9%	37.6%
Have you ever been told that someone you knew killed himself or herself?	1.77*	31.9%	26.4%	23.0%	20.7%	25.7%	26.0%
Have you ever been told that someone you knew had been raped?	2.72*	40.3%	31.3%	29.8%	36.6%	33.9%	38.2%

NOTE: Odds ratios derived from logistic regression including one adversity, adjusted for the effects of gender, ethnicity, socioeconomic level, and marital status.
*Significant odds ratio at $p < .05$ or better.

a natural disaster, forced sexual intercourse, forced sexual assault, physical abuse (by a parent or guardian), and emotional abuse. That 4 out of 6 items on the occurrence of abuse or sexual assault were not significantly associated with self-reported criminal behavior is consistent with some research (Kratcoski 1982) but contrary to Widom's (1989) finding that such abuse is a strong predictor of subsequent adolescent criminal behavior. Abuse victimizations were among the experiences that were least prevalent among male respondents (ranging from a 1.6 percent prevalence rate for physical abuse to a 5.3 percent prevalence rate for emotional abuse, compared to 5.3 percent for physical abuse and 17.9 percent for forced sexual assault among female respondents). Given that male respondents were substantially more likely to report criminal behavior than female respondents (27 percent versus 7 percent of respondents), the finding that these abuse victimizations were insignificant for the dependent variable is not too surprising.

Of the lifetime traumas, those adversities most strongly related to criminal behavior entailed other, nondomestic violent victimizations: being threatened with a weapon but not injured (odds ratio [OR] = 3.96), being shot or badly injured with a weapon (OR = 4.71), and being chased but not caught under duress (OR = 3.45). For each of these nondomestic violent victimizations, male respondents were much more likely than female respondents to report such experiences. The reported prevalence of nondomestic violent victimizations was also substantially greater for African Americans than for any other racial or ethnic category.

The disproportionate experience of adversity by African Americans was most pronounced with respect to witnessing violence. Blacks reported such experiences at much greater rates than other ethnic or racial groups, ranging from witnessing someone getting killed by violence (25.2 percent) to someone being chased (60.7 percent). The same racial disparity was found for the two traumatic news items that involved hearing about a friend or acquaintance who had been killed by violence or shot at (but not killed), with the percentage of African Americans reporting such experiences being 66.4 percent and 66.7 percent respectively.

Each of the adversities involving witnessing violence and those involving receiving traumatic news were significant predictors of criminal behavior. Indeed, next to the nondomestic violent victimizations, the strongest predictors of the dependent variable were the community violence adversities, with each having an OR of 3 or greater. As was the case with the nondomestic violent victimizations, the prevalence rates for witnessing such violent events in the community were substantially greater for male respondents than female respondents. However, no gender difference was observed with respect to receiving traumatic news.

Table 2 presents the results of hierarchical logistic regression analyses predicting criminal behavior from demographic characteristics and recent (proximal) exposure to adversities. Demographic factors are first considered in model 1, which indicates that male and African American respondents (relative to non-Hispanic Whites) are at a significantly elevated risk. Models 2 through 5 assess the relevance of recent witnessed domestic and community-based violence and receiving traumatic news. Whether considered separately or in combination, both witnessing community violence and receiving traumatic news significantly predicted criminal behavior, whereas witnessing domestic violence did not. The absence of evidence for a linkage between recently witnessed domestic violence and antisocial behavior among young adults is inconsistent with prior findings on adolescents (e.g. Hughes 1988; Singer et al. 1998). To our knowledge, this research represents the first examination of such an association among a representative sample of young adults (see Edelson 1999).

It is noteworthy that when witnessed violence and the receipt of traumatic news were held constant (model 5), the coefficient for African American respondents was reduced by nearly 94 percent, whereas that for male respondents declined by less than 10 percent. This suggests that the linkage between race and young adult crime is largely mediated through the substantially elevated exposure to witnessed violence and traumatic news that tends to characterize the lives of African Americans. Surprisingly, a similar conclusion with respect to the gender contrast in criminal behavior was not supported in these results.

Models 6 through 8 in Table 2 consider the role of personally experienced recent adversities, including domestic abuse (model 6), other violent victimizations (model 7), and accidents (model 8). Although significant coefficients were observed for both accidents and other violent victimizations when added singly, only community-based (other) violent victimizations contributed significantly to the equation when they were considered concurrently. Both recent life events (model 10) and early adolescent deviance (model 11) made significant independent contributions to the prediction of criminal behavior without having identifiable impacts on other predictors. The final model (model 12) adds information on the extent of association with criminal peers. Although this addition reduced the magnitude of the coefficient for witnessing community violence, it remained statistically significant, along with gender, recent life events, and other violent victimizations.

On the basis of evidence that exposure to traumatic events can have important long-term consequences (Rutter 1989; Turner and Lloyd 1999), we also explored the association between early (distal) exposure to adversities and criminal behavior in a series of hierarchical logistic regression analyses

TABLE 2: Logistic Regression Predicting Criminal Behavior from Demographic Characteristics and Proximal Exposure to Adversities (N = 1,230)

Predictor	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*	*Model 8*	*Model 9*	*Model 10*	*Model 11*	*Model 12*
Demographic characteristics												
Socioeconomic status	–.00	–.00	–.01	–.01	–.01	–.01	–.02	–.02	–.02	–.01	–.01	–.08
Married	.15	.13	.31	.21	.33	.31	.35	.32	.35	.42	.36	.37
Cuban	.11	.10	.14	.07	.11	.12	.17	.11	.16	.20	.23	.38
Other Hispanic	.20	.20	.28	.20	.26	.27	.27	.28	.29	.28	.30	.24
African American	.48**	.46**	.12	.24	.03	.04	.11	.05	.13	.26	.36	.21
Male	1.22†	1.23†	1.02†	1.26†	1.10†	1.12†	.99†	1.09†	.99†	1.20†	1.15†	.93***
Proximal life stressors												
Witnessing domestic violence		.42			.21	.15	.21	.21	.19	.11	.09	.23
Witnessing community violence			.57†		.49†	.49†	.38†	.45†	.35†	.35†	.33†	.23***
Traumatic news				.41†	.22***	.21***	.17***	.21***	.16	.02	.00	–.06
Domestic abuse victimization						.16			.03	–.14	–.18	–.33
Other violent victimizations							.46†		.44†	.37***	.36***	.33**
Accidents								.37**	.31	.20	.20	.21
Recent life events										.20†	.20†	.17†
Other criminogenic factors												
Adolescent deviance											1.65†	1.28***
Association with criminal peers												.18†
Intercept	–2.98	–3.00	–3.17	–3.35	–3.37	–3.40	–3.35	–3.43	–3.41	–4.17	–5.97	–6.68
–2 log likelihood	976.0	975.2	911.4	945.9	903.9	903.3	888.8	899.6	885.6	854.6	841.0	789.2
Nagelkerke R^2	.05	.05	.14	.09	.15	.15	.17	.15	.17	.21	.23	.29

NOTE: Ethnicity reference group is White (non-Hispanic).
**$p < .05$. ***$p < .01$. †$p < .001$.

(Table 3). Model 1 reveals that distal vicarious experiences—witnessing domestic violence, witnessing community violence, and receiving traumatic news—were each significant independent predictors of criminal behavior. Of the other distal adversities considered (models 2 through 5), only experiences of other violent victimizations contributed significantly to the equation. Once these community-based violent victimizations were included, the measure of witnessed community violence was reduced to nonsignificance. Both of the other measures of vicarious adversities remained significant.

Model 6 (Table 3) includes a summary measure of the proximal adversities examined in Table 2 to determine whether distal experiences were relevant to criminal behavior net of the effects of recently experienced adversities. Although both of the distal experiences of receiving traumatic news and other violent victimizations remained significant, the inclusion of the summary count of proximal adversities served to increase the coefficient for the distal adversity of witnessing community violence (from .04 to .19, significant at $p > .05$), suggesting evidence of a suppressor effect. However, the inclusion of proximal life stressors and recent life events in the analysis (models 6 and 7) reduced the magnitude of the distal witnessing of domestic violence by more than 65 percent to insignificance. This suggests that much of the association between the distal experience of witnessing domestic violence and contemporary criminal behavior is mediated through more proximal life stressors and recent life events. This is consistent with evidence that individuals who experience traumas in childhood tend to experience greater levels of adversities later in life (Turner et al. 1995).

Model 8 adds a measure of adolescent deviance, and model 9 also includes association with criminal peers. Although the presence of adolescent deviance is a significant predictor of young adult crime, controlling on this factor had no observable consequence for the other predictors. The inclusion of the criminal peers measure, however, had a marked impact on the violent victimizations coefficient: It was reduced in magnitude (from .19 to .11) and failed to remain a significant predictor. However, the distal experience of receiving traumatic news along with exposure to recent (proximal) life stressors (recent life events and a summary count of proximal adversities) continued to predict criminal behavior.

To assess the possibility that distal factors conditioned the relationship between proximal adversities and criminal behavior, multiplicative interaction terms were formed between each measure of distal adversity and the summary measure of proximal adversities. None of these interactions proved significant ($p < .05$). The possibility that the association with criminal peers moderated the linkage between exposure to proximal life adversities and criminal behavior was also assessed through interaction analysis. The result offered no evidence of such a moderating effect.

TABLE 3: Logistic Regression Predicting Criminal Behavior from Demographic Characteristics, Proximal Life Stressors, and Distal Exposure to Adversities (N = 1,230)

Predictor	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*	*Model 8*	*Model 9*
Demographic characteristics									
Socioeconomic status	.04	.04	.05	.03	.05	.03	.03	.04	.10
Married	–.06	–.06	–.13	–.05	–.13	.07	.17	.13	.20
Cuban	.20	.22	.19	.21	.21	.19	.19	.24	.38
Other Hispanic	.16	.19	.19	.17	.21	.25	.24	.26	.21
African American	.38	.41	.44	.39	.46	.03	.13	.23	.10
Male	1.20†	1.29†	1.05†	1.19†	1.09***	.92***	1.09†	1.07†	.95***
Distal adversities									
Witnessing domestic violence	.53***	.47**	.51***	.53***	.46**	.27	.16	.16	.19
Witnessing community violence	.17**	.15**	.06	.16**	.04	.19**	.17*	.16*	.10
Traumatic news	.24***	.24***	.21***	.24***	.21***	.26***	.24***	.23***	.22**
Domestic abuse victimization		.19			.14	–.02	–.07	–.08	–.02
Other violent victimizations			.31***		.32***	.25***	.22**	.19**	.11
Accidents				.06	.02	.10	.07	.09	.11
Proximal life stressors									
Summary count of proximal adversities						.31†	.26†	.25†	.18†
Recent life events							.13†	.13***	.11***
Other criminogenic factors									
Adolescent deviance								1.33***	1.07**
Association with criminal peers									.17†
Intercept	–3.57	–3.70	–3.64	–3.59	–3.74	–4.39	–4.76	–6.20	–6.84
–2 log likelihood	947.9	945.7	936.4	947.6	933.5	845.5	834.0	825.3	784.7
Nagelkerke R^2	.08	.09	.10	.09	.11	.22	.24	.25	.30

NOTE: Ethnicity reference group is White (non-Hispanic).
*p < .10. **p < .05. ***p < .01. †p < .001.

SUMMARY AND DISCUSSION

Evidence has accumulated that young people in America are witnesses to considerable violence at home and in the community (Martinez and Richters 1993; Myers and Thompson 2000; Scarpa 2001). The consequences of such exposure for youth are in need of further investigation. Although extant studies have broached the issue of whether exposure to violence in the community is a predictor of antisocial behavior among adolescents, this study is the first to examine the association between witnessing community violence and criminal behavior in a representative sample of young adults. The data also allowed us to distinguish the effects of witnessing violence from those of hearing traumatic news and to assess the significance of distal as well as proximal experiences of adversity. Finally, we were able to assess whether witnessing violence was associated with criminal behavior, controlling for the direct victimization experiences of the respondents. This is particularly important because many prior studies have failed to control for the possible effects of direct victimization when assessing the role of witnessed domestic violence for subsequent problem behavior (Edleson 1999), raising concerns about spurious findings.

Of the direct victimization experiences (community-based violence, domestic violence, and accidental traumas), only community-based violent victimizations were found to be significantly associated with young adult criminal behavior. The finding that violent victimizations perpetrated by family members or other loved ones were not significant predictors of young adult criminal behavior when other factors are considered should be interpreted cautiously. As reported earlier, the influence of domestic violence on criminal behavior is likely mediated through the variable measuring exposure to recent adverse life events. Experiencing violence or abuse at the hands of loved ones may serve to damage other relationships and reduce effectiveness in school or the workplace and hence may be associated with long-term consequences that are captured in the recent life events inventory (see Widom 1989 and Rutter 1983 for further discussion of the ways that stressful experiences may be linked to problem behaviors).

Of the measures of vicarious violence, only recently witnessed community violence and distal traumatic news were found to be significant predictors of criminal behavior once other factors were considered concurrently. However, a composite count of experienced proximal adversities was significantly associated with criminal behavior when the distal factors were considered concurrently.

In summary, the findings suggest that recent (proximal) exposure to violence in the community along with a history of receiving traumatic news, direct victimizations in the community, recent life events, and associations

with criminal peers increase the risk for young adult criminal offending. Two core issues regarding these findings remain to be considered. The first concerns the theoretical implications of these findings. Our results can be interpreted as consistent with any of a number of competing explanations of criminal behavior: social learning theory (Akers 1985), differential association theory (Sutherland 1947), general strain theory (Agnew 1992), social disorganization theory (Shaw and McKay 1942), or routine activities theory (Cohen and Felson 1979). However, these data do not allow the assessment of the relative merits of these alternative explanations.

A second core question is whether (or to what extent) these linkages reflect causal connections. Despite the ability to control on early adolescent deviant activity, the possibility of reciprocal effects must be considered (see also Paschall et al. 1998). Further, it is plausible that elevated experiences of witnessing violence in the community simply reflect a differential tendency for risk-taking young adults to place themselves in risky situations and in the company of other risk takers (Felson 1997). Our data cannot rule out the possibility that personal attributes associated with risk taking increase the likelihood of both stress exposure and crime. Such an interpretation seems consistent with some of the findings presented. The significance for criminal behavior of deviant peers and nondomestic violent victimizations could be interpreted as indicators of the risky lifestyles of crime-prone adults. Similar concerns have recently been raised about the nature of the association between deviant peers and antisocial behavior, with suggestions that a reverse causal relationship, a reciprocal relationship, or a spurious relationship may be involved instead of a causal one. Indeed, Gottfredson and Hirschi (1990) charged that measures of peer delinquency may be "merely another measure of self-reported delinquency" (p. 157). Both Matsueda and Anderson (1998) and Zhang and Messner (2000) found considerable overlap between self-reported antisocial behavior and the reported antisocial behavior of peers, lending some support to this allegation. Our findings that exposure to witnessed community violence and direct community-based victimizations are independently associated with criminal behavior potentially raise the same concerns.

On the other hand, we believe that the bulk of the evidence presented here is supportive of the notion that exposure to adversities does indeed serve to increase the risk for being involved in crime. For example, the aforementioned association between distal witnessing of domestic violence and criminal behavior suggests that exposure to stress does have long-term consequences that are manifested in several ways, including an increased risk of being involved in crime. Our observation that such distal experiences as witnessing domestic violence or receiving traumatic news are associated with an increased risk for criminal activity among young adults is difficult to

interpret as either a reverse causal or spurious relationship. Furthermore, even after controlling for the effects of criminal peers and prior deviance, two factors that presumably constitute the primary sources of reverse causality and spuriousness, associations between exposure to such adversities and criminal behavior remained observable. Although the possibility of reverse causality or spuriousness cannot be completely set aside, it seems increasingly clear from this analysis and others that young people who are exposed to greater levels of stress, including the stress of witnessing violence, are at a heightened risk for myriad social problems, including post-traumatic stress disorder, depression, anxiety, memory and concentration deficits, poor academic performance, and antisocial behavior (Fitzpatrick 1997; Osofsky et al. 1993; Paschall et al. 1998; Shakoor and Chalmers 1991; Turner and Lloyd 1999; Warner and Weist 1996). Coupled with research that has found that exposure to potentially traumatic events and post-traumatic stress disorder are common among juvenile offenders (Erwin et al. 2000), our findings contribute to a growing literature that demonstrates a notable linkage between exposure to such adversities and the risk for antisocial behavior. Whether exposure to community violence is causally implicated in criminal behavior, is a reinforcement of existing tendencies toward criminal behavior, or merely represents a marker for a criminogenic environment, the importance of exposure to such experiences in understanding criminal activity needs further exploration given these and other recent findings exploring this topic (Paschall et al. 1998; Scarpa 2001).

APPENDIX
Recent Life Events Items

Please tell which of the following experiences happened to you or someone close to you in the past 12 months.

Was there a serious accident or injury?
Was there a serious illness?
Was there trouble with the law?
Did anyone have something taken from them by force?[a]
Was anyone beaten up or physically attacked?[a]
Was there an unwanted pregnancy?
Was there an abortion or miscarriage?
Was someone accused of or arrested for a crime?[a]
Did someone drop out of school?
Was there a marital separation or divorce?
Was there a loss of a home due to hurricane, flood or other disaster?
Was someone laid off or fired?
Did someone have a business that failed?

Did someone have a major financial crisis?
Did someone fail school or a training program?

Please tell which of the following experiences happened to you or to your partner/boyfriend/girlfriend in the past 12 months.

Experienced a change of job for a worse one?
Was demoted at work or took a cut in pay?
Was sued by someone?
Went on welfare?
Was forced off welfare?
Went on strike?

Please tell which of the following experiences happened to you in the past 12 months.

Found out partner/boyfriend was unfaithful?
A romantic relationship ended?
A close relationship ended?
Partner/boyfriend/girlfriend found out you were unfaithful?
Increased arguments with your partner/boyfriend/girlfriend?
Moved to a worse residence or neighborhood?
Had driver's license taken away?
Had your house or car broken into?
Your parents asked you to leave your house?

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a. Item was included in the count of recent life events only if "anyone" referred to a parent or guardian.

NOTES

1. Scarpa (2001) did examine the association between victimization and aggression, but she did not consider the independent effects of witnessing violence and violent victimization concurrently.

2. Some readers unfamiliar with the stress literature may question why internal reliability statistics are not reported for the stress exposure checklists used in these analyses. As noted by Turner and Wheaton (1995),

> [stressful life events] items are specifically not alternative estimates of a single underlying construct, characteristic, or experience. Since it is not necessarily the case that the experience of one event increases the likelihood of another, there should be no expectation that event inventories display internal reliability as estimated by Cronbach's (1951) alpha. (P. 37)

3. Because of concerns about multi-item indices being compared with single-item measures, all of the analyses were rerun using standardized scores for each of the count measures of life adversities. The use of standardized scores did not alter the results.

4. It must be noted that our measure of witnessing domestic violence captured victimization events only in which the victim was female. Because this measure failed to capture the witnessing of domestic violence involving male victims, findings regarding the effects of witnessing domestic violence are only salient to witnessing such acts against close female relatives.

5. Accidents can be distinguished from violence in that the latter entails intentional actions.

6. Social class was a measure constructed from three different indices: occupational prestige (using the Hollingshead prestige codes) of the primary earner in the household, educational attainment level of the primary earner in the household, and household income. The three scores from these items were transformed into *z* scores, summed, and then transformed into quintiles representing five levels of socioeconomic status.

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